Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Chapter 16-Evolution of Population Unit Exam

**Part A-Multiple Choice- For each question circle the correct answer. (2pts. Each)**

1. What is the main source of genetic variation?
2. Mutation
3. Gene Shuffling
4. Crossing-over
5. All of the above
6. In humans, a widow peak is an example of a \_\_\_\_\_\_\_\_.
7. Polygenic trait
8. Single-gene trait
9. Crossing-over
10. None of the above
11. Height in humans is a classic example of \_\_\_\_\_\_\_\_.
12. Polygenic trait
13. Single-gene trait
14. Crossing-over
15. All of the above
16. In a population of mice, the largest and smallest mice are the individuals least likely to survive. What kind of natural selection is most likely to occur in this situation?
17. Stabilizing selection
18. Disruptive selection
19. Genetic selection
20. Direction selection
21. Random change in allele frequency is often called \_\_\_\_\_\_?
22. Founder effect
23. Genetic drift
24. Crossing-over
25. Gene shuffling
26. The\_\_\_\_\_\_\_\_\_\_\_ states that allele frequencies will remain constant unless one or more factors cause those frequencies to change?
27. Natural selection principle
28. Darwin’s theory of evolution
29. Hardy-Weinberg principle
30. Stabilizing selection principle
31. What is it called when two different species do not breed due to their differences of courtship rituals or other reproductive strategies?
32. Temporal isolation
33. Geographic isolation
34. Behavioral isolation
35. Strategy isolation
36. What type of bird did Darwin observe to test natural selection in nature?
37. Black bird
38. Warblers
39. Crows
40. Finches
41. What factor or factors can cause speciation?
42. Mutation
43. Genetic drift
44. Gene flow
45. Isolation
46. All of the above
47. A situation in which allele frequencies change as a result of migration of a small subgroup of a population is know as:
48. Bottleneck effect
49. Hitch hiking
50. Replacement effect
51. Founder effect

**Part B- True/False- Put either True or False in the blank next to the following questions. (2pts. Each)**

1.\_\_\_\_Scientists know everything there is to know about evolution. It is not an ongoing process.

2.\_\_\_\_Darwin hypothesized that the birds he was studying had descended from a common ancestor.

3.\_\_\_\_Genetic equilibrium occurs when allele frequencies in a population remain constant.

4.\_\_\_\_Natural selection on single-gene traits can lead to changes in allele frequencies and thus to evolution.

5.\_\_\_\_The effects of natural selection are less complex for polygenic traits.

6.\_\_\_\_According to the Hardy-Weinberg principle, allele frequencies will remain constant if the population size is small.

7.\_\_\_\_Temporal isolation occurs when two or more species reproduce at different temperatures.

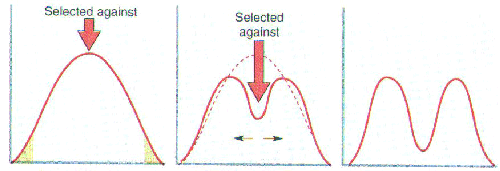
8.\_\_\_\_Mutations always affect an organism’s phenotype.

9.\_\_**\_\_**Most heritable differences are due to gene shuffling that occur during the production of gametes.

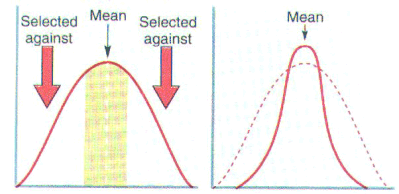
10.\_\_\_A polygenic trait can have many possible genotypes and phenotypes.

**Part C- Short Answers- Answer the following questions with complete sentences. Please make sure you answer each question completely. Partial credit will be given for answers close to the correct response. (5 pts each)**

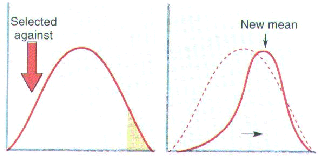
1. Describe the Hardy-Weinberg principle and list the five conditions required to maintain genetic equilibrium?
2. Define genetic drift and explain how it is different than natural selection?
3. For each figure: describe what type of the selection the figure represents and give a description of each type of selection.



Type of selection-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Description **–**



Type of selection- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Description –



Type of selection- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Description-